



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 1927.5-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 5: Determination of density**

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 5 of GB/T 1927 "Test Methods for Physical and Mechanical Properties of Small Specimens of Wood without Defects": GB/T 1927 has been issued

The following parts are distributed:

- Part 1: Collection of test materials;
- Part 2: Sampling methods and general requirements;
- Part 3: Determination of growth ring width and latewood rate;
- Part 4: Determination of moisture content;
- Part 5: Density determination;
- Part 6: Determination of dry shrinkage;
- Part 7: Determination of water absorption;
- Part 8: Determination of swelling properties;
- Part 9: Determination of flexural strength;
- Part 10: Determination of flexural modulus of elasticity;
- Part 12: Determination of transverse grain compressive strength;
- Part 17: Determination of impact toughness;
- Part 18: Determination of impact indentation;
- Part 19: Determination of hardness;

--- Part 20: Determination of splitting resistance:

This document replaces GB/T 1933-2009 "Determination of Wood Density": Compared with GB/T 1933-2009, except for structural adjustment and compilation

In addition to the editorial changes, the main technical changes are as follows:

- a) Changed the content of the scope (see Chapter 1, Chapter 1 of the:2009 edition);
- b) terms and definitions are added (see Chapter 3);
- c) Changed the dimensional measurement accuracy (see Chapter 5, Chapter 4 of the:2009 edition);
- d) Added the content of wood density determination under the corresponding moisture content (see Chapter 6);
- e) Changed the conversion formula of air-dry density (see Chapter 7, Chapter 5 of the:2009 edition);
- f) Changed the calculation formula of absolute dry density (see 8:3, 6:3 of the:2009 edition);
- g) Changed the sample preparation and calculation formula for basic density determination (see 9:1:2 and 9:3, 7:1:2 and 7:3 of the:2009 edition);
- h) Changed the Appendix A record table (see Appendix A Table A:1, Table A:3 and Table A:4, Appendix A, Appendix B and Appendix C of the:2009 edition):

This document is modified to adopt ISO 13061-2:2014 "Test methods for the physical and mechanical properties of wood with small defect-free specimens - Part 2: Density

Measurement":

Compared with ISO 13061-2:2014, this document has made the following structural adjustments:

--- Chapter 6, Chapter 7, Chapter 8 and Chapter 9 correspond to Chapter 6, Chapter 7 and Chapter 8 in ISO 13061-2:2014, where

6:1, 7:1 and 8:1 correspond to 6:1~6:3 in ISO 13061-2:2014, and 9:1 corresponds to 6:1~ in ISO 13061-2:2014

6:3 and Chapter 4 Notes, 6:2 correspond to Chapter 4 Notes in ISO 13061-2:2014 and 7:1, 7:2 correspond to ISO 13061-2:

7:1, 6:3 and 7:3 in:2014 correspond to 8:1, 8:2, 8:3, 9:2 and 9:3 in ISO 13061-2:2014 respectively

7:2, 8:2, 7:3 and 8:3 of ISO 13061-2:2014;

--- Chapter 10 corresponds to Chapter 9 in ISO 13061-2:2014:

The technical differences between this document and ISO 13061-2:2014 and their reasons are as follows:

- Changed the source of terminology (see Chapter 3) to ensure the professionalism and uniformity of terminology;
- Some terms are deleted (see Chapter 3), and only terms directly related to wood density are retained;
- Changed the accuracy of dimension and mass measurement (see 5:1 and 5:2) to improve scientificity;
- Changed the accuracy of density calculation (see 6:3, 7:3, 8:3 and 9:3) to improve scientificity;
- Added the specific content of volume measurement by drainage method (see 9:2:2):

The following editorial changes have been made to this document:

- In order to harmonize with the existing standards, the name of the standard is changed to "Test methods for physical and mechanical properties of wood with small samples without defects - Part 5: Confidentiality"

Degree Measurement";

- Changed the expression of the scope of application of the standard (see Chapter 1);
- Changed the expression of the principle (see Chapter 4);
- Included in the technical errata corrections of ISO 13061-2:2014/AMD1:2017, supplemented the test report should include at least

Information "b) Dimensions of the specimen" (see 10:2);

- Added Appendix A (informative) "Wood Density Determination Record Form";
- Removed references:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

The standard of test methods for physical and mechanical properties of wood is used in wood scientific research, teaching, wood inspection, wood structure design, wood processing and production, etc:

It is widely used and is an important basic standard in the wood industry: In 1980, my country issued the first edition of the test methods for physical and mechanical properties of wood:

The domestic standard (GB/T 1927~GB/T 1943) was revised twice in:1991 and:2009 respectively: In recent years, with the development of wood science and technology

The development of technology, ISO 3129:2012 "Sampling methods for wood physical and mechanical tests of small samples of wood without defects and

"General Requirements" has been revised, and ISO 3130:1975 "Determination of moisture content by physical and mechanical tests of wood", ISO 3131:1975 "Wood

15 international standards for test methods such as "Determination of Density by Physical and Mechanical Testing of Materials" have been integrated and revised: Based on this, in order to be in line with international standards,

This time, the third revision was made to the national standard for test methods for physical and mechanical properties of wood in my country, and the 22 scattered test methods were integrated and adjusted to

The sub-part document of GB/T 1927 adopts the latest version of the international standard in the revision:

GB/T 1927 aims to establish a test method for the physical and mechanical properties of wood with small samples without defects: It is intended to be composed of 21 parts:

--- Part 1: Collection of test materials: The purpose is to describe the sample collection method for testing the physical and mechanical properties of wood with small samples without defects:

--- Part 2: Sampling methods and general requirements: The purpose is to establish a suitable test for the physical and mechanical properties of small wood samples without defects:

Specimen sawing, interception methods and general requirements to be observed when testing methods:

--- Part 3: Determination of growth ring width and latewood rate: The purpose is to characterize the growth ring width and latewood rate of small samples of clear wood method of determination:

--- Part 4: Determination of moisture content: The purpose is to describe a method for the determination of the moisture content of small wood samples without defects:

--- Part 5: Density determination: The purpose is to describe the density, air-dry density, absolute dry

Methods for the determination of density and basic density:

--- Part 6: Determination of dry shrinkage: The purpose is to describe the measurement of radial, chordwise and volume drying shrinkage of unblemished small sample wood: